Amendments to the Specification:

Please amend the paragraph beginning on page 9, line 4, to read as follows:

A high-volume lens curing apparatus includes at least a first lens curing unit and a second lens curing unit. The lens forming apparatus may, optionally, include an anneal unit. A conveyance system may be positioned within the first and/or second lens curing units. The conveyance system may be configured to allow a mold assembly to be transported from the first lens curing unit to the second lens curing unit. Lens curing units include an activating light source for producing activating light. Anneal unit may be configured to apply heat to ~~an~~ at least partially ~~relive~~ relieve or relax the stresses caused during the polymerization of the lens forming material. A controller may be coupled to the lens curing units and, if present, an anneal unit, such that the controller is capable of substantially simultaneously operating the three units. The anneal unit may include a conveyor system for transferring the demolded lenses through the anneal unit.

In the Description of the Drawings, please amend the sentence beginning on page 12, line 11, to read as follows:

Figs. 41a, 41b, ~~and 41c~~ 41c and 41d depict schematic perspective views of various embodiments of cams that may be employed in a mold storage array;

Please amend the paragraph beginning on page 24, line 17, to read as follows:.

As shown in Fig. ~~7~~8, the mold assembly 352 may include opposed mold members 378, separated by an annular gasket 380 to define a lens molding cavity 382. The opposed mold members 378 and the annular gasket 380 may be shaped and selected in a manner to produce a lens having a desired diopter.

Please amend the paragraph beginning on page 26, line 15, to read as follows:

Figs. 9 and 10 present an isometric view and a top view, respectively, of a gasket 510. Gasket 510 may be annular, and is preferably configured to engage a mold set for forming a mold assembly. Gasket 510 is preferably characterized by at least four discrete projections 511. Gasket 510 preferably has an exterior surface 514 and an interior surface 512. The projections 511 are preferably arranged upon inner surface 512 such that they are substantially coplanar. The projections are preferably evenly spaced around the interior surface of the gasket. Preferably, the spacing along the interior surface of the gasket between each projection is about 90 degrees. Although four projections are preferred, it is envisioned that more than four could be incorporated. For example, a fifth projection may be incorporated into the gasket which may be configured to contact one of the mold members. The gasket 510 may be formed of a silicone rubber material such as GE SE6035 which is commercially available from General Electric. In another embodiment, the gasket 510 may be formed of copolymers of ethylene and vinyl acetate which are commercially available from E. I. DuPont de Nemours & Co. under the trade name ELVAX7. In another embodiment, the gasket 510 may be formed from polyethylene. In another embodiment, the gasket may be formed from a thermoplastic elastomer rubber. An example of a thermoplastic elastomer rubber that may be used is, DYNAFLEX G-2780 commercially available from GLS Corporation.

Please amend the paragraph beginning on page 30, line 4, to read as follows:

A method for making a plastic eyeglass lens~~es~~ using either gasket 510 or 530 is presented. The method preferably includes engaging gasket 510 with a first mold set for forming a first lens of a first power. The first mold set preferably contains at least a front mold member 526a and a back mold member 526b. A mold cavity for retaining a lens forming composition may be at least partially defined by mold members 526a and 526b and gasket 510. Gasket 510 is preferably characterized by at least four discrete projections 511 arranged on interior surface 512 for spacing the mold members. Engaging gasket 510 with the mold set preferably includes positioning the mold members such that each of the projections 511 forms an oblique angle with the steep and flat axis of the back mold member 526b. In a preferred embodiment, this angle is about 45 degrees. The method preferably further includes introducing a lens forming

composition into mold cavity 528 and curing the lens forming composition. Curing may include exposing the composition to activating light and/or thermal radiation. After the lens is cured, the first mold set may be removed from the gasket and the gasket may then be engaged with a second mold set for forming a second lens of a second power. When using the gasket 530,~~.~~ the method further includes introducing a lens forming composition through fill port 538, wherein the first and second mold members remain fully engaged with the gasket during the introduction of the lens forming composition. The lens forming composition may then be cured by use of activating light and/or thermal radiation.

Please amend the paragraph beginning on page 45, line 23, to read as follows:

The lens forming material may include any suitable liquid monomer or monomer mixture and any suitable photosensitive initiator. As used herein "monomer" is taken to mean any compound capable of undergoing a polymerization reaction. Monomers may include non-polymerized material or partially polymerized material. When partially polymerized material is used as a monomer, the partially polymerized material preferably contains functional groups capable of undergoing further reaction to form a new polymer. The lens forming material preferably includes a photoinitiator that interacts with activating light. In one embodiment, the photoinitiator absorbs ultraviolet light having a wavelength in the range of 300 to 400 nm. In another embodiment, the photoinitiator absorbs actinic light having a wavelength in the range of about 380 nm to 490 nm. The liquid lens forming material is preferably filtered for quality control and placed in the lens molding cavity 382 by pulling the annular gasket 380 away from one of the opposed mold members 378 and injecting the liquid lens forming material into the lens molding cavity 382 (See Fig. ~~11~~8). Once the lens molding cavity 382 is filled with such material, the annular gasket 380 is preferably replaced into its sealing relation with the opposed mold members 378.

Please amend the paragraph beginning on page 55, line 18, to read as follows:

Preferably, acrylated amines are included in the co-initiator composition. Acrylyl amines may have the general structures depicted in Fig. ~~39~~16, where R_0 is hydrogen or methyl, n and m

are 1 to 20, preferably 1-4, and R_1 and R_2 are independently alkyl containing from 1 to about 4 carbon atoms or phenyl. Monoacrylyl amines may include at least one acrylyl or methacrylyl group (see compounds (A) and (B) in FIG. 16). Diacrylyl amines may include two acrylyl, two methacrylyl, or a mixture of acrylyl or methacrylyl groups (see compounds (C) and (D) in FIG. 16). Acrylyl amines are commercially available from Sartomer Company under the trade names of CN-381, CN-383, CN-384, and CN-386, where these co-initiators are monoacrylyl amines, diacrylyl amines, or mixtures thereof. Other acrylyl amines include dimethylaminoethyl methacrylate and dimethylaminoethyl acrylate both commercially available from Aldrich. In one embodiment, the co-initiator composition preferably includes a mixture of CN-384 and CN-386. Preferably, the total amount of co-initiators in the lens forming composition ranges from about 50 ppm to about 7 % by weight.

Please amend the paragraph beginning on page 58, line 1, to read as follows:

The lens forming composition may also include other activating light absorbing compounds such as UV stabilizers, UV absorbers, and dyes. UV stabilizers, such as Tinuvin 770 may be added to reduce the rate of degradation of the formed lens caused by exposure to ultraviolet light. UV absorbers, such as 2-(2H-benzotriazol-2-yl)-4-(1,1,3,3,-tetramethylbutyl)phenol, may be added to the composition to provide UV blocking characteristics to the formed lens. Small amounts of dyes, such as Thermoplast Blue 684 and Thermoplast Red from BASF may be added to the lens forming composition to counteract yellowing. These classes of compounds have been described in greater detail in previous sections.

Please amend the paragraph beginning on page 75, line 26, to read as follows:

The controller is preferably configured to run a computer software program which, upon input of the eyeglass prescription, will supply the identification markings of the appropriate front mold, back mold and gasket. The computer program includes a plurality of instructions configured to allow the controller to collect the prescription information, determine the appropriate front mold, back mold, and gasket required to a form a lens having the inputted

prescription, and display the appropriate identification markings for the front mold, back mold and gasket. In one embodiment, the computer program may include an information database. The information database may include a multidimensional array of records. Each ~~records~~ record may include data fields corresponding to identification markings for the front mold, the back mold, and the gasket. When the prescription data is entered, the computer program is configured to look up the record corresponding to the entered prescription. The information from this record may be transmitted to the user, allowing the user to select the appropriate molds and gasket.

Please amend the paragraph beginning on page 76, line 11, to read as follows:

In one embodiment the information database may be a three dimensional array of records. An example of a portion of a three dimensional array of records is depicted in Table ~~9~~7. The three dimensional array includes array variables of sphere, cylinder, and add. A record of the three dimensional array includes a list of identification markings. Preferably this list includes identification markings for a front mold (for either a left or right lens), a back mold and a gasket. When a prescription is entered the program includes instructions which take the cylinder, sphere and add information and look up the record which is associated with that information. The program obtains from the record the desired information and transmits the information to the user. For example, if a prescription for left lens having a sphere power of +1.00, a cylinder power of –0.75 and an add power of 2.75 is entered, the front mold identification marking will be FT-34, the back mold identification marking will be TB-101, and the gasket identification marking will be G25. These values will be transmitted to the user via an output device. The output device may include a display screen or a printer. It should be understood that the examples shown in Table ~~9~~ 7 represent a small portion of the entire database. The sphere power may range from +4.00 to -4.00 in 0.25 diopter increments, the cylinder power may range from 0.00 diopters to -2.00 diopters in 0.25 diopter increments, and the add power may range from +1.00 to +3.00 in 0.25 diopter increments.

Please amend the heading for Table 9 beginning on page 77, line 4, to read as follows:

Table 7~~9~~

Please amend the paragraph beginning on page 78, line 1, to read as follows:

A second information database may include information related to curing the lens forming composition based on the prescription variables. Each record may include information related to curing clear lenses (i.e., non-photochromic lenses) and photochromic lenses. The curing information may include filter information, initial curing dose information, postcure time and conditions, and anneal time. An example of a portion of this database is depicted in Table ~~10~~8. Curing conditions typically depend on the sphere power of a lens, the type of lens being formed (photochromic or non-photochromic), and whether the lens will be tinted or not. Curing information includes type of filter being used, initial dose conditions, postcure time, and anneal time. A filter with a 50 mm aperture (denoted as "50 mm") or a clear plate filter (denoted as "clear") may be used. Initial dose is typically in seconds, with the irradiation pattern (e.g., top and bottom, bottom only) being also designated. The postcure time represents the amount of time the mold assembly is treated with activating light and heat in the postcure unit. The anneal time represents the amount of time the demolded lens is treated with heat after the lens is removed from the mold assembly. While this second database is depicted as a separate database, the database may be incorporated into the mold and gasket database by adding the lens curing information to each of the appropriate records.

Please amend the heading beginning on page 79, for Table 10, line 8 to read as follows:

Table ~~10~~8

Please amend the paragraph beginning on page 84, line 1, to read as follows:

The lens forming composition is typically stored at temperatures below about 100 °F. At these temperatures, however, the lens forming composition may be relatively viscous. The viscosity of the solution may make it difficult to fill a mold cavity without creating bubbles within the lens forming composition. The presence of bubbles in the lens forming composition

may cause defects in the cured eyeglass lens. To reduce the viscosity of the solution, and therefore reduce the incidence of air bubbles during filling of the mold cavity, the lens forming composition may be heated prior to filling the mold cavity. In an embodiment, the lens forming composition may be heated to a temperature of about ~~70~~ 80 °F to about 220 °F, preferably from about 130 °F to about 170 °F prior to filing the mold cavity.~~,~~ Preferably, the lens forming composition is heated to a temperature of about 150 °F prior to filling the mold cavity.

Please amend the paragraph beginning on page 84, line 25, to read as follows:

Fig. 22 depicts a cross sectional view of the monomer heating system. The body includes a ~~monomer~~ bottom 1502 and top 1504. The top of the body 1504 may include an opening 1506 sized to allow a fluid container 1560 to be inserted within the opening. The opening may be sized such that the bottle rests at an angle when placed in the opening, as depicted in Fig. 22. In some embodiments, the angle of the bottle may be between about 5 and about 45 degrees. In one embodiment, the opening is sized to receive a cap 1562 of a fluid container 1560. The cap 1562 and the opening 1506 may be sized to allow the cap to be easily inserted through the opening. If all of the fluid in the fluid container 1562 will fit in the body 1500 of the monomer heating system, the cap 1562 may be removed and the bottle placed in the opening. The fluid container 1560 may be left until all of the fluid has been emptied into the body 1500. The fluid container 1560 may be removed or left in the opening after the monomer has emptied into the body 1500.

Please amend the paragraph beginning on page 86, line 25, to read as follows:

The heating system is preferably disposed within the body, as depicted in Fig. 22. In an embodiment, the body may be divided into a main chamber 1512 and a heating system chamber 1514. The lens forming composition may be disposed within the main chamber ~~1514~~1512, while the heating system 1510 is preferably disposed within the heating system chamber ~~1512~~1514. The heating system chamber ~~1512~~ 1514 preferably isolates the heating system 1510 from the main chamber 1512 such that the lens forming composition is inhibited from contacting the heating system. Typically, the heating system 1510 may attain temperatures significantly higher than desired. If the heating system 1510 were to come into contact with the lens forming

composition, the higher temperature of the heating system may cause the contacted lens forming composition to become partially polymerized. By isolating the heating system 1510 from the lens forming composition such partial polymerization may be avoided. To further prevent partial polymerization, the heating system is preferably insulated from the bottom surface of the main chamber. An insulating material may be placed between the heating system and the bottom of the main chamber. Alternatively, an air gap may be formed between the heating system and the bottom of the main chamber to prevent overheating of the bottom of the main chamber.

Please amend the paragraph beginning on page 87, line 14, to read as follows:

A thermostat or thermocouple 1530 may be placed within the chamber, in contact with either the lens forming composition and/or the heating system chamber. In another embodiment, the thermostat may be placed in the heating system chamber between the main chamber and the heating element. When positioned in this manner, the thermostat may be more ~~response~~ responsive to changes in the temperature of the monomer. The thermostat 1530 preferably monitors the temperature of the lens forming composition. In an embodiment, the thermostat may be a bi-metal immersion temperature switch. Such thermostats may be obtained from Nason, West Union, South Carolina. The temperature switch may be configured for a specific temperature by the manufacturer. For example, the optimal monomer composition may be about 150 °F. The temperature switch may be preset by the manufacturer for about 150 °F. When the monomer solution is below 150 °F, the switch may be in an "on" state, which causes the heating system to continue operating. Once the temperature of the monomer solution reaches about 150 °F, the temperature switch may change to an "off" state. In the off state the heating system may be switched off. As the temperature of the monomer solution cools to below 150 °F, the switch may cause the heating system to turn back on.

Please amend the paragraph beginning on page 88, line 1, to read as follows:

Alternatively, a controller 1570 may be coupled to a thermocouple 1530 and the heating system 1510. The thermocouple 1530 may provide a signal to the controller that indicates a temperature determined by the thermocouple. The thermocouple may be positioned within an

aluminum block disposed within the main chamber and adjacent to the heating system chamber. The temperature detected by the thermocouple may be a combination of the temperature of the heating system chamber wall and the lens forming composition. The controller ~~1540~~ 1570 may monitor the temperature of the lens forming composition via the signals produced by thermocouple 1530 and controls the heating system 1510 to keep the lens forming composition at a predetermined temperature. For example, as the lens forming composition becomes cooler the controller may activate the heating system 1510 to heat the lens forming composition back to the desired temperature. The controller ~~1540~~ 1570 may be a computer, programmable logic controller, or any of other known controller systems known in the art. These systems may include a proportional-integral ("PI") controller or a proportional-integral-derivative ("PID") controller.

Please amend the paragraph beginning on page 88, line 24, to read as follows:

A fluid monitor 1580 may be used to monitor the level of fluid in the body 1500. A fluid monitor 1580 may be positioned within the body 1500. Fluid monitors are commercially available from Gems Sensors Inc., Plainville, CT. ~~IN~~ In one embodiment model ELS-1100HT from Gems Sensors may be used. The fluid monitor may be configured to monitor the level of fluid in the body 1500. If the fluid level drops below a preselected minimum, the fluid sensor may produce a signal to a controller. A controller may be coupled to the monomer heating system (e.g., controller 1570) or may be part of the lens forming apparatus (e.g., controller 50). In one embodiment, the controller may produce a warning message when a low fluid level signal is received from the fluid sensor. Alternatively, the controller may determine when a fluid level may be low in the body by monitoring the number of fills. For example, a sensor may be coupled to the body and may send a signal to the controller each time a fill is completed. The warning message may be an alphanumeric readout on a controller output device (e.g., and LCD screen) or the warning message may involve causing a light to turn on signifying the low fluid level. The controller may also be configured to turn the heating system 1510 off when the fluid level within the body is too low. The warning message may also be an alphanumeric readout on the monomer heating system. In addition, warning messages may also be generated by the controller computer to signify a ready state of the fill unit or a warming up state of the fill unit.

Please amend the paragraph beginning on page 90, line 20 to read as follows:

The interaction of the elongated member 1522 with the movable member 1524 allows the elongated member to be positioned in either a closed or open position. The ~~moveable member 1524~~top of the body 1504 preferably includes a plurality of threads ~~the~~ that interact with complimentary threads along the elongate member ~~1526~~1522. Rotation of the movable member may cause the elongated member to move away from or toward the outlet, depending on the direction of rotation of the movable member.

Please amend the paragraph beginning on page 90, line 27, to read as follows:

A mold assembly holder 1540 may be coupled to the body of the monomer heating system, as depicted in Fig. ~~22~~21. The mold assembly holder 1540 is configured to hold the mold assembly at a preferred location with respect to the outlet of the body 1500. The mold assembly holder may secure the mold assembly during filling. In one embodiment, the ~~molds~~ mold assembly holder is spring mounted to the bottom surface of the monomer heating system. The mold assembly holder includes an arm 1542 that is coupled to the body 1500 by hinge 1544. The hinge allows the mold assembly holder to be rotated away ~~form~~ from or toward the body 1500 of the monomer heating solution. Hinge 1544 may be spring loaded such that a constant force is exerted on the arm, forcing the arm toward the bottom of the body 1500. To place the mold assembly 1550 on the mold assembly arm 1544, the arm may be rotated away from the body and the mold assembly placed onto a portion of the arm configured to hold the mold assembly. The portion of the arm configured to hold the mold assembly may include a clamping system to secure the mold assembly.

Please amend the paragraph beginning on page 92, line 1, to read as follows:

The heating of the monomer solution may be coordinated with the entry of a prescription using a controller. In one embodiment, the monomer heating system may be electrically coupled to a lens forming apparatus, such as the apparatus depicted in Fig. 1. The monomer heating

system may have ports that are appropriate for using standard data transfer cables to couple to ports that are disposed on the lens forming apparatus. The operation of the monomer heating system may thus ~~coordinated~~ coordinate with the operation of the lens forming apparatus. In some embodiments, it may be desirable to minimize the amount of time a monomer solution is heated. In these instances, it may be desirable to heat the monomer solution just before filling the mold assembly. The controller 50 of the lens forming apparatus may be configured to coordinate the filling operation with the needs of an operator.

Please amend the heading for Table 11, beginning on page 94, line 3, to read as follows:

Table 9~~11~~

Please amend the paragraph beginning on page 94, line 15, to read as follows:

The post-cure and anneal times given in Table ~~11~~ 9 are strictly exemplary of the particular system described herein. It should be understood that the time for the post-cure and anneal process may vary if the intensity of the lamps or the temperature of the process is altered. For example, increasing the intensity of light used during the post-cure process may allow a shorter post-cure time. Similarly, reducing the temperature of the post-cure unit during the annealing process may cause an increase in the anneal time. Generally, the post-cure process is believed to be related to the time required to substantially complete curing of the lens forming composition. The anneal process is believed to be related to the amount of time required to bring the formed lens to its final resting power.

Please amend the paragraph beginning on page 95, line 6, to read as follows:

The use of a lens forming composition which includes an aromatic containing polyether polyethylenic functional monomer, a co-initiator composition and a photoinitiator allows much simpler curing conditions than other lens forming compositions. While pulsed activated light curing sequences may be used to cure the lenses, continuous activating light sequences may also be used, as described in Table ~~11~~9. The use of continuous activating light sequences allows the

lens curing equipment to be simplified. For example, if continuous activating light is used, rather than pulsed light, equipment for generating light pulses is no longer required. Thus, the cost of the lens curing apparatus may be reduced. Also, the use of such a lens forming composition allows more general curing processes to be used. As shown in Table ~~11~~9, seven different processes may be used to cure a wide variety of lenses. This greatly simplifies the programming and operation of the lens curing unit.

Please amend the paragraph beginning on page 95, line 26, to read as follows:

Table ~~11~~ 9 shows the preferable curing conditions for a variety of lenses. The sphere column refers to the sphere power of the lens. The monomer type is either clear (i.e., non-photochromic) or photochromic. Note that the lens type (e.g., spheric single vision, aspheric single vision lens, flat-top bifocal lens or progressive multifocal lens) does not significantly alter the lens curing conditions. Tinted refers to whether the formed eyeglass lens will be soaked in a dye bath or not.

Please amend the paragraph beginning on page 96, line 4 to read as follows:

Based on the prescription information the lens curing conditions may be determined. There are four curing variables to be set. The type of light filter refers to the filter placed between the lamps and the mold assembly in the curing unit and the post cure unit. The initial ~~does~~ dose refers to the time that activating light is applied to the lens forming composition in the curing unit. The irradiation pattern (e.g., irradiation of the front mold only, the back mold only, or both molds) is also dependent on the lens being formed. After the initial dose is applied the mold assembly is transferred to the post cure unit where it is treated with activating light and heat. The chart lists the preferred time spent in the post cure chamber. After treatment in the post cure chamber the formed eyeglass lens is removed from the mold assembly. The lens may undergo an annealing process, for the time listed, in which the lens is heated either in the presence or absence of activating light. It should be noted that all of the lens curing processes recited are preferably performed without any cooling of the mold apparatus.

Please amend the paragraph beginning on page 99, line 11, to read as follows:

After the anneal process, the lens may be coated in the coating unit with a scratch resistant hard coat. The lens may also be tinted by placing in a tinting bath. It is believed that tinting of the lens is influenced by the crosslink density of the lens. Typically, a lens having a relatively high crosslink density exhibits more homogenous absorption of the dye. Problems such as blotching and streaking of the dye are typically minimized by highly crosslinked lenses. The crosslink density of a lens is typically controlled by the temperature of curing of the lens. A lens which is cured at relatively high temperatures typically exhibits a crosslink density that is substantially greater than a low temperature cured lens. The curing time may also influence the hardness of a lens. Treating a lens for a long period of time in a post cure unit will typically produce a lens having a greater crosslink density than lenses treated for a shorter amount of time. Thus, to produce lenses which will be subsequently treated in a tinting bath, the lens forming composition is treated with heat and activating light in the post cure unit for a longer period of time than for the production of non-tinted lenses. As shown in ~~table~~Table ~~11~~9, non-tinted clear lenses are treated in the postcure unit for about 13 minutes. For clear lenses, which will be subsequently tinted, the post cure time is extended to about 15 minutes, to produce a lens having a relatively high crosslink density.

Please amend the paragraph beginning on page 102, line 1, to read as follows:

In another embodiment, a single curing unit may be used to perform the initial curing process, the post cure process, and the anneal process. A lens curing unit is depicted in Fig. 25 and Fig. 26. The curing unit 1230 may include an upper light source 1214, a lens drawer assembly 1216, and a lower light source 1218. Lens drawer assembly 1216 preferably includes a mold assembly holder 1220 (see Fig. 26), more preferably at least two mold assembly holders 1220. Each of the mold assembly holders 1220 is preferably configured to hold a pair of mold members that together with a gasket form a mold assembly. Preferably, the lens drawer assembly may also include a lens holder 1221 (see Fig. 26), more preferably at least two lens holders 1221. The lens holders 1221 are preferably configured to hold a formed eyeglass lens. The lens drawer assembly 1216 is preferably slidingly mounted on a guide 1217. During use,

mold assemblies and/or lenses may be placed in the mold assembly holders 1220 or lens holders 1221, respectively, while the lens drawer assembly is in the open position (i.e., when the ~~door~~ drawer extends from the front of the lens curing unit). After the holders have been loaded, the ~~door~~ drawer may be slid into a closed position, with the mold assemblies directly under the upper light source 1214 and above the lower light source 1218. The lens holders and lenses disposed upon the lens holders may not be oriented directly under the upper and lower light sources. As depicted in Fig. 26, the light sources 1214 and 1218 preferably extend across a front portion of the curing unit, while no lamps are placed in the rear portion of the curing unit. When the lens drawer assembly is slid back into the curing unit, the mold assembly holders 1220 are oriented under the lamps, while the lens holders 1221 are oriented in the back portion where no lamps are present. By orienting the holders in this manner curing process which involve light and heat (e.g., post cure processes) and annealing processes, which may involve either application of heat and light or the application of heat only, may be performed in the same unit.

Please amend the paragraph beginning on page 103, paragraph line 9, to read as follows:

In one embodiment, an upper light filter 1254 may be positioned between upper light source 1214 and lens drawer assembly 1216, as depicted in Fig. 25. A lower light filter 1256 may be positioned between lower light source 1218 and lens drawer assembly 1216. Examples of suitable light filters have been previously described. The light filters are used to create a proper distribution of light with regard to the prescription of the eyeglass lens. The light filters may also insulate the lamps from the curing chamber. During post cure and annealing processes it is preferred that the chamber is heated to temperatures between about 200 and 225 °F. Such temperatures may have a detrimental ~~effects~~ effect on the lamps such as shortening the lifetime of the lamps and altering the intensity of the light being produced. The light filters 1254 and 1256, when mounted into the guide 1217, will form an inner chamber which partially insulates the lamps from the heated portion of the chamber. In this manner, the temperatures of the lamps may be maintained within the usual operating temperatures.

Please amend the paragraph beginning on page 103, line 23 to read as follows:

Alternatively, a heat barrier 1260 may be disposed within the curing chamber. The heat barrier may insulate the lamps from the curing chamber, while allowing the activated light generated by the lamps to pass into the chamber. In one embodiment, the heat barrier may include a borosilicate plate of glass (e.g., PYREX glass) disposed between the light sources and the mold assembly. In one embodiment, a pair of borosilicate glass plates 1264 and 1262 with an intervening air gap between the plates 1263 serves as the heat barrier. The use of borosilicate glass allows the activating radiation to pass from the light sources to the lamps without any significant reduction in intensity.

Please amend the paragraphs beginning on page 104, on line 9, to read as follows:

In order to allow post cure and annealing procedures to be performed, a heating system 1250 is preferably disposed within the curing unit, as depicted in Fig. 26. The heating system 1250 may be a resistive heating system, a hot air system, or an infrared heating system. The heating system 1250 may be oriented along the back side of the curing chamber. The heating system 1250 is preferably disposed at a position between the two filters, such that the heating system is partially insulated from the ~~lamps~~ light sources 1214 and 1218. Preferably, the heating system is configured to heat the curing chamber to a temperature of about 200 °F to about 225 °F.

The incorporation of a heating system into a system which allows irradiation of a mold assembly from both sides will allow many of the above described operations to be performed in a single curing unit. The use of lamps in the front portion of the curing unit, while leaving the back portion of the curing chamber substantially free of lamps, allows both activating light curing steps and annealing steps to performed in the same unit at the same time. Thus the curing conditions described in Table ~~11~~ 9 may be performed in a single unit, rather than the two units as described above.

In another embodiment, the method of producing the lenses may be modified such that all of the initial curing process is performed while heat is applied to the lens forming composition.

Table ~~12~~10 shows alternate curing conditions which may be used to cure the lens forming compositions.

Please amend the heading for Table 12, beginning on page 105, line 3, to read as follows:

Table ~~12~~10

Please amend the paragraph beginning on page 105, line 4, to read as follows:

After the mold assembly is filled with the appropriate monomer solution the mold assemblies are placed in the mold assembly holders of the drawer of the curing unit. The drawer is slid back into the curing unit. The curing unit may be preheated to a temperature of about 225 °F prior to placing the mold assemblies in the curing unit. The curing conditions include applying activating light to one or both of the mold members while substantially simultaneously applying heat to the mold assemblies. As shown in Table 10~~2~~ the light curing conditions are similar to the previously described conditions. However, the initial dose and the post-cure processes have been combined into a single process. Thus, for the formation of a photochromic lens having a sphere power of +1.50, the mold assemblies are placed in the lens curing unit and irradiated with activating light from the bottom of the unit for about 15 seconds. The curing unit is preferably at a temperature of about 225 °F while the activating light is applied. After 15 seconds, the bottom light is turned off and the mold assemblies are treated with activating light from the top lamps for about 13 minutes. This subsequent treatment with activating light is also performed at a curing chamber temperature of about 225 °F. After the 13 minutes have elapsed, the lights may be turned off, the lens removed from the molds and an anneal process begun.

Please amend the paragraph beginning on page 106, line 10 to read as follows:

The anneal process may be performed in the same unit that the cure process is performed. The demolded lens is preferably placed in the lens holders of the curing unit drawer. The curing unit is preferably at a temperature of about 225 °F, when the lens ~~are~~ is placed in the curing unit. Preferably, the lens holders are positioned away from the lamps, such that little activating light

reaches the lenses when the lamps are on. This allows anneal processed to be performed at the same time that curing processes are performed and within the same curing unit. Lenses that have been formed with a mixture of heating and light typically exhibit crosslink density that are greater than lenses which are cured using combinations of light only curing with light and heat curing.

Please amend the paragraph beginning on page 106, on line 20, to read as follows:

The mold assembly, with a lens forming composition disposed within the mold cavity, is preferably placed within the lens curing unit. Curing of the lens forming composition is preferably initiated by the controller after the lens curing unit ~~door~~ drawer is closed. The curing conditions are preferably set by the controller based on the prescription and type of lens being formed.

Please amend the paragraph beginning on page 106, on line 26, to read as follows:

After the curing cycle has been completed,~~.~~ ~~T~~the controller preferably prompts the user to remove the mold assembly from the lens curing unit. In an embodiment, the cured lens may be removed from the mold apparatus. The cured lens may be complete at this stage and ready for use.

Please amend the paragraph beginning on page 108, on line 13, to read as follows:

Referring now to Fig. 27, a high-volume lens forming apparatus is generally indicated by reference numeral 800. As shown in Fig. 27, lens forming apparatus 800 includes at least a first lens curing unit 810 and a second lens curing unit 820. The lens forming apparatus may, optionally, include an anneal unit 830. In other embodiments, a post cure unit may be a separate apparatus which is not an integral part of the lens curing apparatus. A housing in which first lens curing unit 810, second lens curing unit 820, and anneal unit 830 may be disposed may be formed of an insulating material. In this manner, the housing may be configured to reduce heat transfer between the first lens curing unit, the second lens curing unit and the anneal~~.~~ unit. The

lens forming apparatus may also include at least one monomer heating unit or fill unit as described in any of the above embodiments. The lens forming apparatus may also include conveyance system 850 positioned within the first and/or second lens curing units. The conveyance system 850 may be configured to allow a mold assembly, such as has been described above, to be transported from the first lens curing unit 810 to the second lens curing unit 820. For example, the conveyance system may be configured to allow a plurality of mold assemblies, which may be filled with a lens forming composition, to be transported into, through, and out of the lens forming apparatus.

Please amend the paragraphs beginning on page 109, line 11, to read as follows:

Lens curing units 810 and 820 include an activating light source for producing activating light. The activating light sources disposed in units 810 and 820 are preferably configured to direct light toward a mold assembly. Anneal unit 830 may be configured to apply heat to ~~an~~ at least partially ~~relive~~ relieve or relax the stresses caused during the polymerization of the lens forming material. Anneal unit 830, in one embodiment, includes a heat source. A controller 840 may be a programmable logic controller, e.g., a computer. Controller 840 may be coupled to lens curing units 810 and 820 and, if present, an anneal unit 830, such that the controller is capable of substantially simultaneously operating the three units 810, 820, and 830.

As shown in Fig. 28, first curing unit 810 may include upper light source 812 and lower light source 814. Fig. 29 depicts a cut away top view of first curing unit 810. As shown in Fig. ~~29~~28, light sources 812 and 814 of first curing unit 810 may include a plurality of activating light generating devices or lamps. In one embodiment, the lamps are oriented proximate each other to form a row of lights, as depicted in Fig. 29. While the lamps are depicted as substantially U-shaped, it should be understood that the lamps may be linear, circular, or any other shape that allows a uniform irradiation of a lens forming assembly placed in the first curing unit. In one embodiment, three or four lamps are positioned to provide substantially uniform radiation over the entire surface of the mold assembly to be cured. The lamps may generate activating light.

Please amend the paragraph beginning on page 110, on line 1, to read as follows:

The lamps may be supported by and electrically connected to suitable fixtures 811. ~~Lamps~~ Light sources 812 and ~~114~~ 814 may generate either ultraviolet light, actinic light, visible light, and/or infrared light. The choice of lamps is preferably based on the monomers used in the lens forming composition. In one embodiment, the activating light may be generated from a fluorescent lamp. The fluorescent lamp preferably has a strong emission spectra in the 380 to 490 nm region. A fluorescent lamp emitting activating light with the described wavelengths is commercially available as model number FB290D15/ACT/2PC from LCD Lighting, Inc. in Orange CT.

Please amend the paragraph beginning on page 110, on line 26, to read as follows:

In some embodiments, at least four independently controllable lamps or sets of lamps may be disposed in the first curing unit. The lamps may be disposed within the first curing unit with a sliding rack which may maintain a position of the lamps within the first curing unit. The lamps may be disposed in left and right top positions and left and right bottom positions. As shown in Table 10~~12~~, a variety of different initial curing conditions may be required depending on the prescription. In some instances the left eyeglass lens may require initial curing conditions that are substantially different from the initial curing conditions of the right eyeglass lens. To allow both lenses to be cured substantially simultaneously, the four sets of lamps may be independently controlled. For example, the right set of lamps may be activated to apply light to the back face of the mold assembly only, while, at the same time, the left set of lamps may be activated to apply light to both sides of the mold assembly. In this manner a pair of eyeglass lenses whose left and right eyeglass prescriptions require different initial curing conditions may be cured at substantially the same time. Since the lenses may thus advantageously remain together in the same mold assembly holder throughout the process, the production process is simpler with minimized job tracking and handling requirements.

Please amend the paragraph beginning on page 111, on line 14, to read as follows:

To facilitate the positioning and the conveyance of mold assemblies, a mold assembly

holder may be used. An isometric view of a mold assembly holder 900 is depicted in Fig. 30. The mold assembly holder includes at least one, preferably two, portions 910 and 912 configured to hold a mold assembly 930. In one embodiment, the portions 910 and 912 are indentations machined into a plastic or metal block that is configured to hold a standard mold assembly. The mold assembly may be placed in the indentation. An advantage of such ~~the~~ indentations, is that the mold assemblies may be positioned in the optimal location for curing in the first and second curing units 810 and 820.

Please amend the paragraph beginning on page 112, line 29, to read as follows:

The mold assembly holder may also include a location for holding a job ticket 940. Job ticket may be placed in a holder mounted to a side of the mold assembly holder. Alternatively, the job ticket may have an adhesive that allows the ticket to be attached to the side of the mold assembly. The job ticket may include information such as: the prescription information, the mold ID numbers, the gasket ID numbers, the time, date, and type of lens being formed. The job ticket may also include a job number, the job number may correspond to a job number generated by the controller when the prescription is entered into the controller. The job number may also be depicted using a ~~UPC~~ bar coding scheme. Use of a ~~UPC~~ bar code on the job ticket may allow the use of bar-code scanners to determine the job number corresponding to the mold assemblies placed on the mold assembly holder.

Please amend the paragraph beginning on page 114, line 9, to read as follows:

The mold assembly holder 900 may be used in combination with a conveyor system 850 to transfer mold assemblies from the first curing unit to the second curing unit. The second curing unit is configured to apply activating light and heat to the mold assemblies after the curing is initiated by the first curing unit. The use of two curing units in this manner facilitates the application of curing sequences such as the sequences outlined in Table ~~11~~9. In these embodiments, the mold assembly is subjected to an initiating dose of activating light, followed by a post-cure dose of activating light and heat. The initial dose may last from about 7 to 90 seconds. After the initial dose is applied the mold assembly is subjected to a combination of

activating light and heat for about 5 to 15 minutes. In many instances, subjecting the mold assembly to longer times under the post-cure conditions does not significantly effect the quality of the formed lens. Thus, the second curing unit is designed such that the amount of time that the mold assemblies spend in the second unit is not less than about 5 minutes.

Please amend the paragraph beginning on page 114, line 23, to read as follows:

During operation a mold assembly or mold assembly holder is placed on the conveyor system and the mold assembly is moved to a position within the first curing unit 810. In the first curing unit 810, the mold assemblies receive the initial dose of light based on the prescription of the lens, e.g., as outlined in Table ~~11~~9. After the mold assemblies receive their initial dose, the mold assemblies are moved by the conveyor system 850 to the second curing unit. In the second curing unit, the mold assemblies are treated with activating light and heat. The time it takes for the mold assembly to pass entirely through the second curing unit may be equal to or greater than the post-cure time.

Please amend the paragraph beginning on page 116, line 10, to read as follows:

In practice there is a wide variation in the initiation times based on the prescription and the type of lenses being formed. For example, Table ~~11~~ 9 discloses some typical initiation times that range from about 7 sec. to about 90 sec. In order to optimize the system, the length of the second curing unit may be altered based on the maximum predetermined initiation time. For example, the (T_I) rather than being the minimum time will be the maximum time possible for initiation of the curing. In practice, the conveyor system may be configured to advance a mold assembly holder from the first curing unit to the second curing unit at time intervals equal to the maximum possible initial curing cycle (e.g., about 90 sec. for the above-described compositions). To accommodate the different initial curing cycles, a controller may be coupled to the lamps of the first curing unit. The controller may be configured to turn on the lamps such that the initial curing cycle ends at the end of the maximum initial curing time. For example, if the maximum initial curing time is 90 sec., however the prescription and lens type calls for only a 7 sec.~~,~~ cure~~.~~ , ~~The~~ the lamps are kept off until 7 sec. before the end of the 90 sec. time interval (i.e., for 83

seconds). The lamps are, therefore, only activated for the last 7 sec. This may ensure that the time interval between the end of the completion of the initial cure and the entry into the second curing unit is the same regardless of the actual initiation dosage. The length of the second curing unit may be adjusted accordingly to accommodate this type of curing sequence.

Please amend the paragraph beginning on page 117, line 15, to read as follows:

The conveyor system may be configured to convey either mold assemblies or a mold assembly holder (e.g., mold assembly holder 900) through the first and second curing units. A view of the conveyor system in which the curing units have been removed from the lens forming apparatus is depicted in Fig. 31. The conveyor system includes a platform for conveying a mold assembly holder. The platform may be configured to support the mold assembly holder 900 as it passes through the first and second curing units. In one embodiment, the platform is formed from two rails 852 that extend the length of the lens forming apparatus. The rails~~,~~ 852 may be any width, however should be spaced apart from each other at a distance that allows activating light to pass past the rails 852 and to the mold assemblies on the mold assembly holder 900.

Please amend the paragraph beginning on page 118, line 27, to read as follows:

The second curing unit may be configured to apply heat and activating light to a mold assembly as it passes through the second curing unit. The second curing unit may be configured to apply activating light to the top, bottom, or both top and bottom of the mold assemblies. As depicted in Figs. 28 and 35, the second curing unit may include a bank of activating light producing lamps 822 and heating systems 824. The bank of lamps may include one or more substantially straight fluorescent lamps that extend through the entire length of the second curing unit. The activating light sources in the second curing unit may produce light having the same spectral output as the activating light sources in the first curing unit. The spectral output refers to the wavelength range of light produced by a lamp, and the relative intensity of the light at the specific wavelengths produced. Alternatively, a series of smaller lamps may be disposed within the curing unit. In either case, the lamps are positioned such that the mold assemblies will receive activating light as they pass through the second curing unit. The heating unit may be a

resistive heater, hot air system, hot water ~~systems,~~ or infrared heating ~~systems~~. In this manner, a chamber temperature may be controlled by altering the ~~adjusting the~~ power to, for example, the resistive heater. An air distributor 826 (e.g., a fan) may be disposed within the heating system to aid in air circulation within the second curing unit. By circulating the air within the second curing unit, the temperature within the second curing may be more homogenous.

Please amend the paragraph beginning on page 121, line 10, to read as follows:

The controller may also control the flow of the mold assembly holder through the system. The controller may include a monitoring device for determining the job number associated with a mold assembly holder. Fig. 29 depicts a monitoring device 817 which is coupled to the lens forming apparatus proximate the first curing unit. The monitoring device may be a laser or infra-red reading device. In some embodiments, the monitoring device may be a bar code reader for reading a ~~UPC~~ bar code. The monitoring device may be positioned within the first curing unit. When a mold assembly holder is placed on the conveyer system, it may be moved to a position such that the monitoring device may read a job number printed on the job ticket. In one embodiment, the job number is in the form of a ~~UPC~~ bar code. The monitoring device may be coupled to the controller. The controller may use the job number, read from the mold assembly holder, to determine the curing conditions required for the job that is being transferred to the first curing unit. In addition, the controller may use the job number, read from the mold assembly holder, to determine when to apply light to the job being transferred to the first curing unit. As described before, the job number may correspond to a prescription that was previously entered into the controller. In this manner the proper curing conditions may be achieved without relying on the operator to input the correct parameters.

Please amend the paragraph beginning on page 124, line 9, to read as follows:

Fig. 36 depicts an embodiment of an ophthalmic mold member storage system including mold member storage array 1806 coupled to controller computer 1801. Mold member storage array 1806 may include rows or columns of mold member storage locations 1804. Indicators 1802 may be arranged proximate each mold member storage location 1804. In this embodiment,

four indicators 1802 may surround each mold member storage location 1804 with adjacent storage locations sharing the indicators between them. To direct a user to select a mold member in a storage location, controller computer 1801 may produce a signal thereby activating indicators 1802. Mold member storage array 1806 may be configured as a vertical, horizontal, or angled array of storage locations 1804 in which ~~a~~ an ophthalmic mold member may be securely stored.

Please amend the paragraph beginning on page 125, line 5, to read as follows:

If the stored mold members are lens molds, as shown in Fig. 38, it may be possible ~~that~~ for individual molds 1830 ~~may~~ to be damaged by contact with one another. To prevent molds 1830 from contacting each other, separating device 1832 may be coupled to the mold storage array. A variety of cams or other separating devices may be used to separate individual molds. Separating device 1832 (more clearly illustrated in Fig. 39) may include one cam or a plurality of cams. Many different types and arrangements of cams may be used. Figs. 40, 41a, 41b, ~~and 41c~~ 41c and 41d depict a variety of cams which may be suitable for separating devices. Reference numerals 1852, 1853, 1861, and 1862 indicate rocking type cams. Reference numeral 1863 indicates a hinged cam. Reference numeral 1864 indicates a reciprocating cam as depicted in Fig. 41d. Fig. 40 also depicts interaction of cams 1852 and 1853 with mold members 1851 and 1855. At dispensing end 1854, cam 1853 may retain mold member 1855 within the storage location, whereas within the body of the storage location, cam 1852 may prevent mold members 1851 and 1855 from contacting one another. The position of the separating devices may vary depending on the mold member storage array and preference. As each mold 1855 is removed for use, the separating devices 1853 may move to dispense the mold 1855.

Please amend the paragraph beginning on page 128, line 13, to read as follows:

As depicted in Fig. 36, device 1807 may be coupled to the controller computer to ease inputting data pertaining to mold member 1809. Device 1807 may be a scanner that reads a human readable code or bar code 1808 attached to mold member 1809. In a preferred embodiment, a code or marking may be assigned and attached to each ophthalmic mold member

1809. For example, bar code 1808 may be located on an outside edge of ophthalmic mold 1809, as depicted in Fig. 36. Scanning device 1807 may read bar code 1808 on an outside edge of ophthalmic mold 1809. In addition, the controller computer 1801 may be configured to send an activation signal to indicators 1802 adjacent to the proper mold member storage location 1804 for mold member 1809.

Please amend the paragraph beginning on page 129, line 10, to read as follows:

Eyeglass lens information may generally refer to any data representative of an eyeglass lens prescription, an eyeglass lens composition, operating conditions configured to produce an eyeglass lens, and/or other appropriate characteristics of an eyeglass lens such as tint. The eyeglass lens composition information may include, for example, an identity of a monomer-containing fluid which may be polymerized to form an eyeglass lens. Such information may be in the form of raw data, including binary or alphanumeric, formatted data, or reports. In some embodiments, eyeglass lens information relates to data collected from ~~an~~ a client or customer. More specifically, eyeglass lens information may take the form of data collected from a doctor examining a patient and/or prescribing an eyeglass lens for a patient, an optician, an optometrist, an ophthalmologist, a retailer of eyeglass lenses, an optical lab, or a wholesaler of eyeglass lenses. The information may be encrypted for security purposes.

Please amend the paragraph beginning on page 133, line 16, to read as follows:

A receiver computer 2006 may also be connected to network 2004. Receiver computer 2006 may be configured to receive an eyeglass lens order from a user. The user may enter the eyeglass lens order by using ~~an~~ a user input device such as a keyboard coupled to receiver computer 2006. Alternatively, receiver computer 2006 may be configured to receive an eyeglass lens order from a client. For example, a client may include a doctor, an optician, an optometrist, an ophthalmologist, a retailer of eyeglass lenses, an optical lab, or a wholesaler of eyeglass lenses, a franchise of a national or local retail chain, or another enterprise which supplies eyeglass lenses. Therefore, the client may be located remotely from receiver computer 2006. A user at a client site such as an employee of a doctor or an employee of a franchise may enter an

eyeglass lens order into computer system 2008 located at the client site. The eyeglass lens order may include eyeglass lens information as described above. Computer system 2008 at the client site may be configured to send the eyeglass lens order to the receiver computer.

Please amend the paragraph beginning on page 141, line 13, to read as follows:

As described above, controller computer 2002 may be configured to monitor a parameter of at least one instrument coupled to the second curing unit during curing of a lens forming composition in the second curing unit. For example, the controller computer may be configured to monitor a temperature of a second curing unit. In addition, the controller computer may be configured to alter a speed of the conveyor system in response to the monitored temperature. In this manner, the controller computer may be configured to prevent a mold assembly holder from being introduced into the second curing unit until the temperature ~~in~~ is within an acceptable range for curing a lens forming composition disposed within the mold assembly holder. In addition, the controller computer may be configured to compare the monitored parameter to an acceptable range for the parameter and to display an error message if the monitored parameter is outside of the acceptable range. In this manner, the controller computer may be configured to monitor a curing process in situ and to provide real-time information to a user of the lens forming apparatus.

Please amend the paragraph beginning on page 142, line 12, to read as follows:

The user may place the at least partially cured lens forming composition contained within the mold assembly holder into an anneal unit. At least one barcode reader may be disposed within the anneal unit as described in any of the above embodiments. In addition, at least ~~the~~ one barcode reader within the anneal unit may be configured as described in any of the above embodiments. Each ~~of the~~ barcode reader within the anneal unit may also be coupled to a controller computer. The controller computer may also be configured as described in any of the above embodiments.

Please amend the paragraph beginning on page 148, line 21 to read as follows:

In addition, the method may include determining information associated with an eyeglass lens order associated with the scanned bar code. For example, the method may include searching a database of eyeglass lens orders using the information representative of the barcode. Alternatively, the method may include processing the information representative of the barcode to determine information representative of an eyeglass lens order. For example, the method may include searching a first database with the barcode to determine information representative of an eyeglass lens order associated with the barcode. In addition, the method may include searching a second database with the determined information representative of an eyeglass order. Furthermore, the method may include sending results of searching the database from a receiver computer to a controller computer over a computer network. Results of searching the database may include any of the information representative of an eyeglass lens order as described above and a barcode associated with the eyeglass lens order.

Please amend the paragraph beginning on page 149, line 6, to read as follows:

The method may also include determining a front mold member identity and a back mold member identity from the information representative of the eyeglass lens order, as shown in step 2106. In addition, the method may include sending the determined front mold member identity and the determined back mold member identity to a controller computer. The method may further include sending the determined front mold member identity and the determined back mold member identity to a mold member storage array. A mold member storage array may be configured as described in any of the above embodiments. In addition, the method may include generating a signal to indicate locations of mold members having the determined mold member identities. The method may also include displaying the generated signal to a user. For example, the generated signal may be displayed as a visual and/or audible signal suitable for detection by a user. Furthermore, the method may include generating and/or displaying the signal sequentially to indicate a location of a ~~front~~ first mold member and a location of a second mold member. As such, a generated signal may indicate a location of an appropriate mold member to a user. The user may remove the appropriate mold member from the mold member storage array and may assemble an eyeglass lens mold containing a lens forming composition in a mold assembly

holder as described above. The lens forming composition may include any of the lens forming compositions as described in above embodiments.

Please amend the paragraph beginning on page 153, line 8, to read as follows:

In addition, the method may include sending the determined front mold member identity and the determined back mold member identity to a mold member storage array. A controller computer may be coupled to a mold member storage array as described above. A mold member storage array may be configured as described in any of the above embodiments. For example, the mold member storage array may include a plurality of drawers or locations configured to hold a mold member. In addition, the method may include determining an appropriate location for a mold member in a mold member storage array, as shown in step 2118. The method may further include generating a signal to indicate the determined location. In addition, the method may include displaying the generated signal to a user. The signal may be visual and/or audible such that the signal may be detected by a user. The method may also include generating ~~and/or~~ multiple signals sequentially as described in above embodiments. As such, a generated signal may indicate, to a user, an appropriate location for an eyeglass mold member having the determined identity. In this manner, a user may place a mold member into an appropriate location in a mold member storage array until an eyeglass lens order is received which requires use of the mold member.

Please amend the paragraph beginning on page 160, line 1, to read as follows:

Selection of Job Viewer or View Jobs 2204 may cause the display screen to change to an embodiment of prescription viewer GUI 2242, an embodiment of which is shown in Fig. 48. GUI 2242 may be displayed on a controller computer, a receiver computer, and/or a client computer system. The controller computer, the receiver computer, and the client computer system may be configured as described in any of the above embodiments. Prescription viewer GUI 2242 may preferably allow a user to select an eyeglass lens order and to view data pertaining to the selected eyeglass lens order. For example, GUI 2242 may include input windows, radio buttons, and/or pull down menus as described in above embodiments to allow a

user to enter information which may be associated with an eyeglass lens order. For example, GUI 2242 may include pull down menu 2244. The pull down menu may include a list of job numbers which may be viewed by selecting the pull down menu. In addition, a user may select one of the job numbers from the pull down menu. A selected job number may appear in a text box ~~on~~ of the pull-down menu subsequent to selection by a user. In addition, GUI 2242 may include input window 2246 which may be configured to receive alphanumeric characters representative of an eyeglass lens order. For example, a user may enter a patient's name into an input window on GUI 2242. GUI 2242 may also be configured such that additional information related to an eyeglass lens order may be entered by a user.

Please amend the paragraph beginning on page 162, line 18, to read as follows:

Information related to operational status of a lens curing apparatus may be displayed in alphanumeric and graphical format. For example, as shown in Fig. 49, GUI 2262 may include output windows 2264 which may include alphanumeric characters representative of information related to operational status of a lens curing apparatus as described above. In addition, GUI ~~2252~~ <u>2262</u> may include a plurality of digital inputs 2266 which may include alphanumeric characters describing an operational status of a lens curing apparatus and a corresponding graphical icon. For example, alphanumeric characters may be used to describe an operation or a process which may be performed by a lens forming apparatus. A graphical icon corresponding to the alphanumeric characters may indicate if the operation or process is currently being performed by the lens forming apparatus or if the operation or process is being performed satisfactorily. For example, if the air pressure within a lens forming apparatus is within operational limits, a graphical icon corresponding to alphanumeric characters such as "Air Pressure OK" may appear as a solid shape such as a circle. Alternatively, if the air pressure within a lens forming apparatus is outside of operational limits, a graphical icon corresponding to alphanumeric characters such as "Air Pressure OK" may appear as an outlined shape such as a circle. The graphical icons may also be altered depending if various equipment of the lens forming apparatus is on or off. In an additional example, the maintenance viewer may also include digital inputs which may indicate if a lamp current draw is too high or too low and if an alarm is currently activated for the lamp current draw, thereby indicating lamp failure. As such, the maintenance viewer may provide

comprehensive information related to the current operational status and setpoints for equipment of a lens forming apparatus.

Please amend the paragraph beginning on page 163, line 19, to read as follows:

Selection of Machine Setup 2216 may cause the display screen to change to an embodiment of machine setup menu GUI 2272, an embodiment of which is shown in Fig. 51. GUI 2272 may be displayed on a controller computer and/or a receiver computer. The controller computer and the receiver computer may be configured as described in any of the above embodiments. Machine Setup GUI 2272 may preferably allow a user to view information related to setpoints and upper and lower limits for parameters of a number of instruments coupled to the lens curing apparatus. As described above, instruments coupled to the lens curing apparatus may include, but are not limited to, thermocouples, timing devices, light detection devices such as photodiodes, and electrical measurement devices. A thermocouple may be configured to measure a temperature of a curing unit or an anneal unit. For example, a thermocouple may be disposed in an air intake vent of a curing unit or an anneal unit. Therefore, parameters of an instrument may include, for example, output of a thermocouple, a timing device, a light detection device, and an electrical measurement device. In this manner, information related to setpoints and limits for parameters of a number of instruments coupled to the lens curing apparatus may include, but may not be limited to, a temperature of a cure unit, a temperature of an anneal unit, time, light intensity, and electrical currents being drawn by lamps coupled to the lens curing apparatus. For example, a user may ~~user~~ use the machine setup menu to enter a setpoint and upper and lower alarm limits for lamp current draws. A temperature of a curing unit may have upper and lower alarm limits of, for example, approximately ~~150~~ 225 °F and approximately ~~150~~ 200 °F, respectively. A temperature of an anneal unit may have upper and lower alarm limits of, for example, approximately ~~200~~ 250 °F and approximately ~~250~~ 200 °F, respectively.

Please amend the paragraph beginning on page 177, line 12, to read as follows:

When the composition is applied to a surface of the lens by a human operator, the

thickness of the first coating composition may vary due to the ~~operators~~ operator's inability to consistently add the composition to the lens at the same rate each time. To overcome this variability, the composition may be added to the plastic lens with an automated dispensing system. The automated dispensing system may include a syringe for holding the composition and a controller drive system for automatically moving the plunger of the syringe. Such systems are commercially available as syringe pumps. A syringe pump may be coupled to a syringe that includes the composition to be added to the lens. The syringe pump may be configured to dispense the composition at a preselected rate. In this manner the rate at which the composition is added to the surface may be accurately controlled. In another embodiment, the dispenser system may include a conveyor for drawing the syringe and syringe pump across the surface of the lens. As the composition is dispensed by the syringe, the conveyor system may draw the syringe across the surface of the lens. In this manner the rate of application and the distribution path of the composition may be performed in a consistent manner.

Please amend the paragraph beginning on page 179, line 16, to read as follows:

After applying the first composition to the plastic lens, the first composition may be cured to form the first coating layer. Curing of the first composition may be accomplished by a variety of methods. In one embodiment, the first composition may be cured by spinning the lens until the composition forms a gel. Alternatively, the composition may be allowed to sit at room temperature for a time sufficient to allow the composition to gel. The gelled composition has a higher index of refraction than the underlying plastic lens, and may therefore serve as the first coating layer. Additionally, at least a portion of the gelled composition may be sufficiently adhered to the plastic lens such that a portion of the gelled composition may remain on the lens during the application of the second composition, thus providing antireflective properties to the lens subsequent to formation of the second coating layer.

Please amend the paragraph beginning on page 182, line 1, to read as follows:

Antireflective coatings are thin films that are formed upon the surface of the eyeglass lens. Such films have an optical thickness that is herein defined as the index of refraction of the

film times the mechanical thickness of the film. The most effective films typically have an optical thickness that is a fraction of a wavelength of incident light. Typically the optical thickness is one-quarter to one-half the wavelength. Thus for visible light (having a ~~wavelengths~~ wavelength approximately between 400 nm and 700 nm) an ideal antireflective coating layer should have a thickness between about 100 and 200 nm. Thicknesses that are less than 100 nm or greater than 200 nm may also be used, although such thickness may not provide an optimal transmittance. In the embodiments cited herein, the combined optical thickness of the coating material may be up to about 1000 nm, more particularly up to about 500 nm.

Please amend the paragraph beginning on page 187, line 17, to read as follows:

The first composition may be cured by a variety of methods. In one embodiment, the first composition may be cured by spinning the ~~lens~~ mold member until the composition forms a gel. Alternatively, the composition may be allowed to sit at room temperature for a time sufficient to allow the composition to gel. In another embodiment, the first composition may be cured by the application of heat to the composition. After the first composition is deposited on the mold member ~~lens~~ and spin dried, the first composition may be in a gelled state. The gelled composition may be heated for a period of about 1-10 minutes at a temperature in the range from about 40 °C to about 120 °C. Heating of the gelled composition in this matter may cause the composition to be converted from a gelled state to a hardened state. In another embodiment, the first composition may be cured by the application of ultraviolet light. As described above, the first composition is applied to the mold member ~~lens~~ and dried to form a gelled composition. The gelled composition may be treated with ultraviolet light for a time sufficient to convert the gelled composition to a hardened state. In some embodiments, the gelled composition is treated with ultraviolet light for a time of about 60 seconds or less. In one embodiment, the ultraviolet light source may be a germicidal lamp.

Please amend the paragraph beginning on page 190, line 13, to read as follows:

Additional coating materials may be placed onto the antireflective coating. In one embodiment, a hardcoat composition may be applied to the antireflective coating formed on the

casting surface of a mold. Curing of the hardcoat composition may create a protective layer on the outer surface of a subsequently formed plastic eyeglass lens. Typically hardcoat compositions are formed from acrylate polymers that, when cured, are resistant to abrasive forces. The subsequently formed hardcoat layer may help to prevent abrasions to the plastic lens. Other coatings that may be formed include hydrophobic coatings and tinted coatings. Such coatings may be formed on the casting surface of the mold, prior to the formation of the antireflective coatings. These coatings, in some embodiments, may allow the formed lens to be removed more easily from the mold assembly. As discussed above, the antireflective coatings may adhere to the molds, making removal of the lens ~~form~~ from the mold assembly difficult. The use of hydrophobic coatings may reduce the adhesion between the mold assemblies and the antireflective coating layer.

Please amend the paragraph beginning on page 193, line 26, to read as follows:

In Table ~~1~~11, Layer 1 refers to the first antireflective coating layer, Layer 2 refers to the second antireflective coating layer. Solutions of each of the components were prepared and used to form the antireflective coatings. For all of the compositions listed in Table ~~1~~11, the remainder of the composition is made up of 1-methoxy-2-propanol. For example, a listing of 5% Ti, should be understood to mean 5% by weight of Ti and 95% by weight of 1-methoxy-2-propanol.

Please amend heading for TABLE 1, beginning on page 195, line 1, to read as follows:

~~TABLE 1~~Table 11

Please amend the paragraph beginning on page 201, line 3, to read as follows:

In Table ~~2~~12, Layer 1 refers to the first antireflective coating layer, Layer 2 refers to the second antireflective coating layer. HR-200 refers to a hydrophobic coating layer formed upon Layer 2. Solutions of each of the components were prepared and used to form the antireflective coatings. For all of the compositions listed in Table ~~2~~12, the remainder of the composition is

made up of 1-methoxy-2-propanol. For example, a listing of 5% Ti, should be understood to mean 5% by weight of Ti and 95% by weight of 1-methoxy-2-propanol.

Please amend the paragraph beginning on page 202, line 1, to read as follows:

The application of the compositions to the lenses, and the measurement of the transmittance was performed in substantially the same manner as recited above for Table ~~1~~11. Curing times are 60 seconds, unless otherwise noted.

Please amend the heading for TABLE 2, beginning on page 203, line 1, to read as follows:

~~TABLE 2~~Table 12

Please amend the paragraph beginning on page 203, line 1, to read as follows:

In Table ~~3~~13, multiple coating layers are formed on the plastic lens. For all of the compositions listed in Table ~~3~~13, the remainder of the composition is made up of 1- methoxy-2-propanol. For example, a listing of 5% Ti, should be understood to mean 5% by weight of Ti and 95% by weight of 1-methoxy-2-propanol.

Please amend the paragraph beginning on page 204, line 4, to read as follows:

The application of the compositions to the lenses, and the measurement of the transmittance was performed in substantially the same manner as recited above for Table ~~1~~11. Curing times are 60 seconds, unless otherwise noted.

Please amend the heading for TABLE 3 beginning on page 205 to read as follows:

~~TABLE 3~~Table 13

Please amend the paragraph beginning on page 207, line 1, to read as follows:

In Table 14, three coating layers are formed on the plastic lens. For all of the compositions listed in Table 14, the remainder of the composition is made up of 1-methoxy-2-propanol. For example, a listing of 5% Ti, should be understood to mean 5% by weight of Ti and 95% by weight of 1-methoxy-2-propanol.

Please amend the paragraph beginning on page 208, line 4, to read as follows:

The application of the compositions to the plastic lens, and the measurement of the transmittance was performed in substantially the same manner as recited above for Table ~~1~~11. Curing times are 60 seconds, unless otherwise noted.

Please amend the heading for TABLE 4beginning on page 209, to read as follows:

~~TABLE 4~~Table 14

Please amend the paragraph beginning on page 210, line 2, to read as follows:

In Table ~~5~~15, Layer 1 refers to the first antireflective coating layer, Layer 2 refers to an intermediate silicon layer, and Layer 3 refers to the second antireflective coating layer. Solutions of each of the components were prepared and used to form the antireflective coatings. For all of the compositions listed in Table ~~5~~15, the remainder of the composition is made up of 1-methoxy-2-propanol. For example, a listing of 5% Ti, should be understood to mean 5% by weight of Ti and 95% by weight of 1-methoxy-2-propanol.

Please amend the heading of TABLE 5 beginning on page 212 to read as follows:

~~TABLE 5~~Table 15

Please amend the paragraph beginning on page 212, on line 1, to read as follows:

In Table ~~6~~16, Layer 1 refers to the first antireflective coating layer, Layer 2 refers to an intermediate silicon layer, and Layer 3 refers to the second antireflective coating layer. Solutions of each of the components were prepared and used to form the antireflective coatings. For all of the compositions listed in Table ~~6~~16, the remainder of the composition is made up of 1-methoxy-2-propanol. For example, a listing of 5% Ti, should be understood to mean 5% by weight of Ti and 95% by weight of 1-methoxy-2-propanol.

Please amend the heading of TABLE 6 beginning on page 214, to read as follows:

~~TABLE 6~~Table 16

Please amend the paragraphs beginning on page 214, line 1, to read as follows:

In Table ~~7~~17, Layer 1 refers to the first antireflective coating layer, Layer 2 refers to an intermediate silicon layer, and Layer 3 refers to the second antireflective coating layer. Solutions of each of the components were prepared and used to form the antireflective coatings. For all of the compositions listed in Table ~~7~~17, the remainder of the composition is made up of 1-methoxy-2-propanol. For example, a listing of 5% Ti, should be understood to mean 5% by weight of Ti and 95% by weight of 1-methoxy-2-propanol.

The application of the compositions to the plastic lens, and the measurement of the transmittance was performed in substantially the same manner as recited above for Table ~~1~~11. Curing time was 60 seconds, unless otherwise noted.

Please amend the heading for TABLE 7 beginning on page 215, to read as follows:

~~TABLE 7~~Table 17

Please amend the paragraph beginning on page 217, line 1, to read as follows:

Table ~~8~~ 18 refers to a series of experiments using an in-mold curing process. In the in-

mold process the layers are built in the opposite manner than they are built upon the plastic lens. Layer 1, thus, refers to the second antireflective coating layer, Layer 2 refers to the first antireflective coating layer, and Layer 3 refers to an adhesion layer. Solutions of each of the components were prepared and used to form the antireflective coatings. For all of the compositions listed in Table ~~8~~18, the remainder of the composition is made up of 1-methoxy-2-propanol. For example, a listing of 5% Ti, should be understood to mean 5% by weight of Ti and 95% by weight of 1-methoxy-2-propanol.

Please amend the paragraph beginning on page 217, line 10, to read as follows:

A casting face of a mold was coated using the different coating compositions. The "Layer 1" composition was added to a surface of the mold and the mold was rotated on a lens spin-coating apparatus. The Layer 1 composition was allowed to substantially evaporate and the remaining composition was subjected to ultraviolet light from the germicidal lamp from the previously described coating unit for about 60 seconds, unless otherwise noted. Layer 2 was added to the ~~eyeglass lens~~ mold after the Layer 1 composition was cured. The Layer 2 composition was spread onto the ~~eyeglass lens~~mold surface and the ~~eyeglass lens~~mold was spun until the solvent was substantially evaporated. Layer 2 was then cured by the application of ultraviolet light from the germicidal lamp from the previously described coating unit. Curing time was 60 seconds, unless otherwise noted. Layer 3 was then added to the antireflective stack. Layer 3 was added to the mold, spun dried and cured. Curing time was 60 seconds, unless otherwise noted.

Please amend the heading for TABLE 8 beginning on page 218, to read as follows:

Table~~8~~ 18

Please amend the paragraph beginning on page 219, line 2, to read as follows:

In Table ~~9~~19, multiple coating layers are formed on the casting surface of the molds prior to use. For all of the compositions listed in Table ~~9~~19, the remainder of the composition is made

up of 1-methoxy-2-propanol. For example, a listing of 5% Ti, should be understood to mean 5% by weight of Ti and 95% by weight of 1-methoxy-2-propanol.

Please amend the paragraph beginning on page 219, line 8, to read as follows:

The application of the compositions to the lenses, and the measurement of the transmittance was performed in substantially the same manner as recited above for Table ~~8~~18. Curing times were 60 seconds, unless otherwise noted.

Please amend the heading, for TABLE 9 beginning on page 220, to read as follows:

~~TABLE 9~~ Table 19